

REMARKS

The Examiner rejected all claims under 35 USC § 103(a) as being unpatentable over Diamantopoulos et. al., U.S. Patent 4, 930,504 ('504) in view of Neuberger, U.S. Patent 5,771,325 ('325).

We have amended claims 1, 4, 12-14 to reflect that the present device is for interstitial treatment of PhotoDynamic Therapy (PDT), and to emphasize that the individual diode units (which contain more than one emitter) are coupled to a specific output port and thus waveguide. Also each such source can be independently regulated to provide preselected power to the corresponding waveguide and thus to the treatment area where each distal tip is embedded.

Diamantopoulos et al. primarily disclose the use of multiple sources on the surface of a device which comes in close proximity to the area to be treated. The examiner is right that here the need for optical fiber is eliminated, but the treatment area is a surface area open to approach by the probe. The placement of multiple sources with direct exposure to areas in visible proximity does not correlate with the establishment of multiple sources-ports-waveguides pairings of the present invention.

In contrast the whole treatment envisioned by the present invention is within a patient's body with multiple probes being placed interstitially into the treatment area and then having the preselected wavelengths for each waveguide and source pair, adjust its power level based on the placement of the waveguides relative to the tumor to be treated with PDT. This was clear in the specification, and now is much clearer in the amended base claim, claim 1, and the claim set where some additional amendments were made in some cases.

The teachings of '504 about multiple sources on the surface a device to permit irradiating a surface open to sight with a variety of wavelengths and powers has little if anything to do with a system for use in irradiating an internal 'tumor' treatment area with a series of fibers from specifically selected sources. This would be a farther stretch than saying that '504 ought to be obvious from the known existence of color filter wheels and compact, solid state radiation sources. In most ways since '504 does away with the need of output fibers to direct the various source light to a treatment area, it could be said to teach away from the present invention.

As to Neuberger in '325, having personally prosecuted this patent, I can safely assert that this merely deals with having redundant power units and an internal structure to permit adding multiple sources together and to be able to replace a poorly functioning unit with a new one without necessarily needed to remove the device from service long. The modular nature of the unit sources and the internal arrangement of optical paths, permitted the main output of the device to be useful even if one or more source units developed a problem.

What '325 does not teach nor imply is that it would be good idea to have a set of independent sources coupled to individual output ports with a 'delivery' waveguide to provide one or more fibers that can be individually placed into the interior of a tumor/treatment site to controllably radiate the site from the inside out (by definition as to how interstitial irradiation works). Further the sets of fibers can deliver different preselected powers and wavelengths dependent on where within the treatment site the distal ends are positioned (see e.g. p8 lines 3ff).

Essentially all the teachings of '504 go to superficial radiation treatments where a tumor/dysplasia, etc. is treated from its surface in. This is essential opposition to the radiation approach of the present invention. The type of modular radiation sources found in '325 are systemized also in opposition to that used in the present invention.

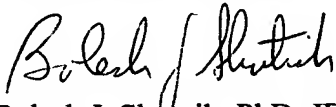
Since neither '504 nor '325 deal with interstitial therapy, nor have any implications for irradiating a tumor/treatment site from within the tumor/site, the specifics and benefits of claim 1 and all dependent claims are uniquely different and non-obvious, whether these references are used alone or together.

With these remarks and changes it is believed that the requirements of 35 USC § 103(a) have been answered and the disclosure and claims are now in condition for allowance. Consideration is respectfully requested. An early and favorable response is earnestly solicited. Thank you.

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